



BTL7-abcd-Mnnnn-f-ij-lm

BTL7

Magnetostrictive linear position sensor Generation 7

a Interface

A = Voltage output 0 ... 10 V
G = voltage output -10 ... 10 V

b Operating voltage

5 = 10 ... 30 V

c + d Interface characteristic 1 + 2

10 = 2 outputs, each 1 x rising/falling

Mnnnn Nominal length (4-position)

M0500 = metric in mm
(M0025...M7620: with 10.2 mm rod diameter)

f Form factor

Z = Inch threads 3/4"-16UNF, for O-Ring

i Variant

DEX = Ignition protection category "d" / pressure-proof encapsulation

j Variant characteristic

A = float plug
B = short plug

l Connection type

K = Cable out radial (PUR)
KA = Cable out axial (PUR)

m Connection type characteristic 1

(length in meters)
02, 05, 10, 15, 20, 30

Magnetostrictive Sensors

BTL7 -Z-DEX- Series - Analog Voltage

BALLUFF

Basic features

Approval/Conformity	CE UKCA IECEX PESO WEEE
Ex marking	ATEX: II 1/2 G Ex d IIC T6/T5 Ga/ Gb II 2D Ex tb IIIC T85 °C/T100 °C Db IP67 -40°C to +65°C (T6) -40°C to +80°C (T5) IECEX: Ex d IIC T6 Ga/Gb Ex tb IIIC T85 °C Db XIP67 -40°C ≤ TA ≤ +65°C Ex d IIC T5 Ga/Gb Ex tb IIIC T100 °C Db IP67 -40°C ≤ TA ≤ +80°C PESO: Ex db IIC T6/T5 Ga/Gb CCC: Ex d IIC T6/T5 Ga/Gb, Ex tD A21 IP67 T85°C/T100°C
Magnets, number (factory setting)	1
Magnets, number max.	1

Electrical connection

Polarity reversal protected	Ub up to 36 V
Short-circuit protection	to GND and to 36 V DC

Electrical data

Current consumption max. at 24 V DC	100 mA
Inrush current	≤ 500 mA/10 ms
Operating voltage Ub	10...30 VDC
Output current max.	5 mA
Output current max.	5 mA
Output signal adjustable	using programming inputs
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	nxxx < 1525: 600 ms nxxx ≥ 1525: 1000 ms
Voltage-proof up to (GND to housing)	500 V AC

Environmental conditions

Ambient temperature	-40...80 °C
EN 55016-2-3, Radiation	For industrial and residential use
EN 60068-2-27, Continuous shock	100 g, 2 ms
EN 60068-2-27, Shock	100 g, 6 ms
EN 60068-2-6, Vibration	12 g, 10...2000 Hz
EN 61000-4-2, ESD	Severity Level 3
EN 61000-4-3, RFI	Severity Level 3
EN 61000-4-4, Burst	Severity Level 3
EN 61000-4-5, Surge	Severity Level 2
EN 61000-4-6, High-frequency fields	Severity Level 3
EN 61000-4-8 Magnetic fields	Severity Level 4
IP rating	IP68
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...90 °C
Surface temperature max.	85 °C
Temperature coefficient typ.	≤ 30 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	72 a
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Interface

Interface	Analog, voltage
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Material

Cable flame-resistant	I = K, KA: IEC 60332-1
Cable jacket, material	I = K, KA: PUR
Cover material	1.4301 stainless steel 1.4305 stainless steel 1.4571 stainless steel
Material flange	1.4404 stainless steel 1.4429 stainless steel 1.4435 stainless steel 1.4571 stainless steel
Protection tube material	1.4571 stainless steel

Mechanical data

Installation length from contact surface	j = A: nxxx + 120 mm j = B: nxxx + 115 mm
Pressure rating max.	350 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	50 Nm

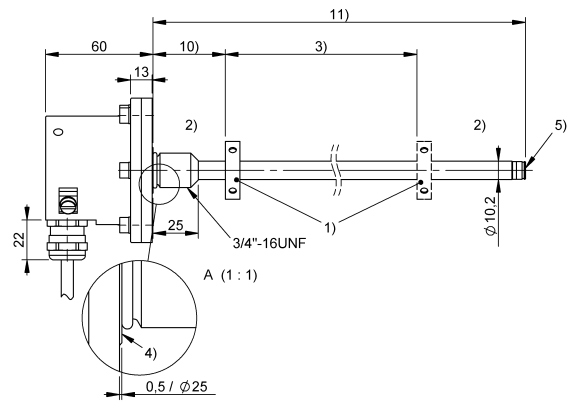
Range/Distance

Linearity deviation	nxxx = 0050...0500: ± 50 µm nxxx = 0501...5500: ± 0.01% FS nxxx > 5500: ± 0.02% FS
Measuring length	25...7620 mm
Repeat accuracy	± 10 µm
Sampling frequency max.	nxxx = 0050...0250: 4000 Hz nxxx = 0251...0600: 2000 Hz nxxx = 0601...1300: 1000 Hz nxxx = 1301...2700: 500 Hz nxxx = 2701...5500: 250 Hz nxxx > 5500: 180 Hz

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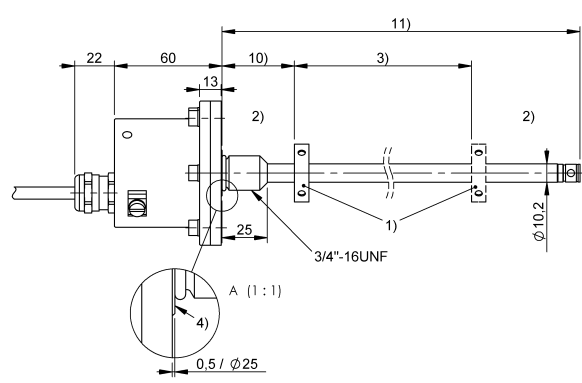
BTL7-A510-Mxxxx-Z-DEXB-K05



colour	
YE	NC
GY	0 V
PK	10...0 V
RD	La
GN	0...10 V
BU	GND
BN	+24 V DC
WH	Lb

- 1) not included in scope of delivery
- 2) Non-usable area
- 3) Nominal length = Measuring length
- 4) Mounting surface
- 5) Internal threads M4x4/6 deep
- 10) Null point
- 11) Installation length

BTL7-G510-Mxxxx-Z-DEXA-KA05



Pin	
1	NC
2	0V
3	10...-10 V
4	La
5	-10...10 V
6	GND
7	+24 V DC
8	Lb

- 1) not included in scope of delivery
- 2) Non-usable area
- 3) Nominal length = Measuring length
- 4) Mounting surface
- 10) Null point
- 11) Installation length